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Archaeofaunal Remains from the Late Prehistoric Mount Joy Site in Botetourt County, Virginia

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INTRODUCTION

Osseous remains of animals recovered from prehistoric archaeological sites, like those from paleontological deposits, provide the opportunity to identify the native distributions of species and sometimes assess the prehistoric compositions and conditions of regional faunas (Whyte, 2001). By extent, this knowledge contributes to reconstructions of ancient climates, environments, and the roles of humans in shaping past environments. Archaeological and paleontological remains are of special interest in regions which underwent significant environmental modifications in pre-recorded colonial times. Most archaeological (archaeofaunal) specimens represent animals selected from the natural population by humans and, therefore, do not likely constitute a sample representative of the former regional fauna. However,

they provide the best clues to the interactions of ancient humans and animals and the effects of human predation on local fauna. The role of prehistoric human predation and environmental modification, in general, should be taken into account in zoogeographical reconstructions and current wildlife management policy.

This study examines archaeofaunal data from the prehistoric (*circa* A.D. 1350) Mount Joy site located near the James River in Botetourt County, Virginia. It was undertaken as an archaeological query, to: (1) identify the animal food resources of the site's native inhabitants; (2) identify the methods and seasonality of human predation, food preparation, and refuse deposition and; (3) place the results in a larger context to evaluate regional and temporal variation in prehistoric human adaptations.

MATERIALS AND METHODS

Mount Joy (44BO2) is a late prehistoric village site located near the confluence of the James River and Looney Mill Creek, Botetourt County, Virginia, in the Ridge and Valley Physiographic Province. Salvage excavations of a sample of the site were conducted by the Virginia Department of Historic Resources in preparation for construction of a drain field for an adjacent manufacturing plant. Removal of the plow zone revealed numerous hearths, post molds, and refuse-filled pits containing stone and ceramic artifacts and plant and animal remains. Ceramic typological analysis and radiocarbon assays place the age of the site within the Dan River cultural phase in the mid-fourteenth century A.D. (Klein & Theriot, 1999).

Animal remains recovered by means of 1/4-inch mesh dry-screening and flotation (1/16-inch heavy fraction) from 19 features and 9 postmolds on the Mount Joy site include 3,881 specimens identified as crayfish (3), fish (891), amphibian (73), reptile (95), turtle (230), bird (733), mammal (1,714), and indeterminate vertebrate (142) (Table 1). Molluscan remains, also abundant in the assemblage, are not included in this analysis. Specimens were identified, with reference to the comparative collections of the Appalachian State University Department of Anthropology, as to skeletal element, side, element portion, and to the narrowest possible taxonomic division. In addition, observations of evidence of burning or other artificial modifications were recorded. Because only a sample of the features was excavated and most fill was processed through a minimum mesh size of 1/4 inch, it is not assumed that the recovered assemblage is representative of the whole site. Consequently, derived measures of taxonomic abundance include only the number of identified specimens (NISP) per taxonomic grouping.

For fish remains, no attempt was made to identify the species represented by postcranial bones (vertebrae, spines, pterygiophores, etc.), as these are overwhelmingly numerous and nondistinctive. Exceptions were made, however, for gars (*Lepisosteus osseus*), which were identified by their distinctive scales, eels (*Anguilla rostrata*) and shad (*Alosa sapidissima*), identified by their distinctive vertebrae, and catfishes (family Ictaluridae) identified on the basis of their distinctive dorsal and pectoral fin spines. These discrepancies in the identification process are considered in discussions of relative taxonomic abundance.

RESULTS

The 3,881 specimens include 1,232 (32%) identified to the species, genus, or family of animal represented (Table 1). A minimum of one species of crayfish, 12 species of fish, two species of amphibians, two species of snakes, four species of turtles, 10 species of birds, and 16 species of mammals are represented by the specimens.

Crustaceans

Three burned dactyl/propodus fragments of crayfish (family Cambaridae) were recovered by means of flotation (1/16-in. mesh) from Features 6, 27, and 28. These almost certainly represent human food. Considering the fact that only burned specimens remain preserved on the site and only flotation allowed their recovery, crayfish are probably under-represented in the assemblage. Crayfish were evidently eaten by the natives of eastern North America, sometimes captured in streams and brooks by means of reeds baited with meat (Lefler, 1967).

Fishes

Fish remains recovered from the site represent seven different families and a minimum of 12 species (Table 1). Fish remains were recovered from nearly every feature and were especially abundant in features sampled for flotation (Whyte, 2000). Remains of minnows (*Semotilus corporalis*, and *Nocomis* spp.) and suckers (*Hypentelium nigricans*, *Moxostoma erythrurum*, and *Catostomus commersoni*) are especially abundant (Table 1). Remains of madtoms (genus *Noturus*) are also abundant, but only because samples of feature fill were floated (Table 1).

Two records from the site are worthy of special note. Only one scale of a Longnose Gar (*Lepisosteus osseus*) was recovered, from Feature 14 (Table 1). Considering that a single individual gar yields over a thousand scales, it at first seems a surprise that only one was recovered. On the other hand, because gars probably were rare above the fall zone of the Atlantic Slope in prehistoric times, it is remarkable that any gar remains were found on the site. A similar discovery was made at the nearby Buzzard Rock site (44RN2) in Roanoke (Whyte, 1999). The one scale recovered may have arrived at the site not in the form of food captured in the adjacent stretch of the James River, but perhaps as part of a skin, tool, weapon, or ornament.

Table 1. Taxa represented among archaeofaunal remains from the Mount Joy site, Botetourt County, Virginia.

Scientific name	Common name	1/4-in. mesh	1/16-in. mesh	NISP*
Crustaceans				
Cambaridae	crayfish	0	3	3
Total Crustacean		0	3	3
Fishes				
<i>Lepisosteus osseus</i>	Longnose Gar	1	0	1
<i>Anguilla rostrata</i>	American Eel	6	8	14
<i>Alosa sapidissima</i>	American Shad	3	5	8
<i>Semotilus corporalis</i>	Fallfish	10	0	10
<i>Nocomis micropogon</i>	River Chub	0	2	2
<i>Nocomis leptocephalus</i>	Bluehead Chub	0	1	1
<i>Nocomis</i> sp.	chub	4	4	8
Cyprinidae	minnow	2	19	21
<i>Hypentelium nigricans</i>	Northern Hogsucker	0	1	1
<i>Moxostoma erythrurum</i>	Golden Redhorse	2	3	5
<i>Moxostoma</i> sp.	redhorse sucker	2	12	14
<i>Catostomus commersoni</i>	White Sucker	9	1	10
Catostomidae	sucker	20	34	54
<i>Ameiurus natalis</i>	Yellow Bullhead	1	1	2
<i>Ameiurus</i> sp.	bullhead catfish	1	1	2
<i>Noturus insignis</i>	Margined Madtom	0	6	6
<i>Noturus</i> sp.	madtom	0	35	35
<i>Lepomis auritus</i>	Redbreast Sunfish	3	6	9
<i>Lepomis</i> sp.	sunfish	7	1	8
Osteichthyes	bony fish	144	536	680
Total Fish		215	676	891
Amphibians				
<i>Rana catesbeiana</i>	Bullfrog	9	1	10
<i>Rana</i> sp.	frog	1	0	1
<i>Scaphiopus holbrookii</i>	Eastern Spadefoot	0	8	8
Bufonidae	toad	22	11	33
Anura	toad/frog	7	14	21
Total Amphibian		39	34	73
Snakes				
<i>Nerodia sipedon</i>	Northern Watersnake	1	1	2
Colubridae	nonpoisonous snake	13	3	16
Crotalidae	pit viper	0	7	7
Serpentes	snake	37	33	70
Total Snake		51	44	95
Turtles				
<i>Chelydra serpentina</i>	Snapping Turtle	1	2	3
<i>Kinosternon subrubrum</i>	Eastern Mud Turtle	3	0	3
<i>Sternotherus odoratus</i>	Stinkpot	38	1	39
<i>Terrapene carolina</i>	Eastern Box Turtle	103	14	117
Kinosternidae/Emydidae	turtle	11	2	13
Emydidae	pond/box turtle	30	25	55
Total Turtle		186	44	230

Table 1 (continued).

Scientific name	Common name	1/4-in. mesh	1/16-in. mesh	NISP*
Birds				
<i>Branta canadensis</i>	Canada Goose	1	0	1
<i>Bonasa umbellus</i>	Ruffed Grouse	2	2	4
<i>Colinus virginianus</i>	Bobwhite	22	6	28
<i>Meleagris gallopavo</i>	Wild Turkey	210	2	212
<i>Ectopistes migratorius</i>	Passenger Pigeon	11	3	14
<i>Colaptes auratus</i>	Northern Flicker	1	0	1
<i>Picoides villosus</i>	Hairy Woodpecker	1	0	1
<i>Melanerpes carolinus</i>	Red-bellied Woodpecker	1	0	1
<i>Turdus migratorius</i>	American Robin	6	0	6
<i>Corvus brachyrhynchos</i>	American Crow	1	0	1
Passeriformes	perching bird	2	3	5
Aves (large)	large bird	384	22	406
Aves (medium)	medium bird	12	0	12
Aves (small)	small bird	5	3	8
Aves	bird	25	9	34
Total Bird		684	49	733
Mammals				
<i>Didelphis virginiana</i>	Opossum	1	0	1
<i>Scalopus aquaticus</i>	Eastern Mole	10	0	10
<i>Procyon lotor</i>	Raccoon	5	1	6
<i>Mephitis mephitis</i>	Striped Skunk	3	0	3
<i>Urocyon cinereoargenteus</i>	Gray Fox	4	0	4
<i>Lynx rufus</i>	Bobcat	1	0	1
Carnivora	indeterminate carnivore	1	1	2
<i>Castor canadensis</i>	Beaver	1	0	1
<i>Marmota monax</i>	Woodchuck	1	0	1
<i>Sciurus carolinensis</i>	Eastern Gray Squirrel	19	0	19
<i>Sciurus niger</i>	Eastern Fox Squirrel	27	2	29
<i>Sciurus</i> sp.	squirrel	42	12	54
<i>Tamias striatus</i>	Eastern Chipmunk	2	6	8
<i>Oryzomys palustris</i>	Rice Rat	0	1	1
<i>Microtus pennsylvanicus</i>	Meadow Vole	0	1	1
<i>Microtus</i> sp.	vole	0	1	1
Cricetidae	mouse/rat	2	2	4
Rodentia	rodent	0	1	1
<i>Sylvilagus floridanus</i>	Eastern Cottontail	1	8	9
<i>Odocoileus virginianus</i>	White-tailed Deer	260	18	278
<i>Homo sapiens</i>	Human	10	2	12
Mammalia (large)	large mammal	366	23	389
Mammalia (small)	small mammal	48	16	64
Mammalia	indeterminate mammal	569	246	815
Total Mammal		1373	341	1714
Indeterminate Vertebrates				
Vertebrata	indeterminate vertebrate	10	132	142
Total Specimens		2558	1323	3881

*NISP = number of identified specimens

Seven vertebrae and one articular of the American Shad (*Alosa sapidissima*) were recovered, from six different features. The American Shad is anadromous and would have arrived at the location of the Mount Joy site during its spawning run between late March and early May. A weir may have been constructed in the nearby James River to take advantage of this seasonal resource. Although shad were undoubtedly captured near the site in spring, the remains may represent secondary (relocated) refuse and, therefore, do not necessarily indicate a spring season of pit filling.

Amphibians

Amphibian remains are relatively few and include those of Bullfrogs (*Rana catesbeiana*) Eastern Spadefoots (*Scaphiopus holbrookii*), and toads of the family Bufonidae (Table 1). These were recovered from several features and may, in certain cases, represent natural entrapment in open pits (see Whyte, 1991). However, 4% of anuran remains became burned, evidently prior to their deposition in these features, suggesting the possibility that they represent food remains or other human refuse.

Snakes

Remains of snakes were recovered from most of the larger contexts yielding faunal remains and include those of Northern Watersnakes (*Nerodia sipedon*), other nonpoisonous snakes (family Colubridae), and pit vipers (family Crotalidae) (Table 1). Snakes may have been consumed or collected for their bones or skins during the warm season.

Turtles

Turtle remains, primarily fragments of the carapace and plastron, are abundant in the assemblage (Table 1). Species represented include Snapping Turtles (*Chelydra serpentina*), Stinkpots (*Sternotherus odoratus*), Eastern Mud Turtles (*Kinosternon subrubrum*), and Eastern Box Turtles (*Terrapene carolina*). Box turtles are most abundant and were probably collected when encountered during daily foraging. It must be cautioned, however, that most of the specimens identified are parts of carapaces, some of which may have been collected as empty shells from the forest floor. All turtles are considered warm-season resources; they may have been difficult to find when they were hibernating.

Birds

Bird remains from the site are primarily those of gallinaceous birds including Ruffed Grouse (*Bonasa umbellus*), Bobwhite (*Colinus virginianus*), and Wild Turkey (*Meleagris gallopavo*) (Table 1). Most of the 406 specimens identified only as indeterminate large bird probably represent *M. gallopavo*. The Wild Turkey would have been easy prey and a dependable food resource throughout the year, but especially in fall (Bent, 1963). Its feathers provided fletching and supply for other tools and ornaments. Several beads and tools fashioned from turkey bones were recovered (see below). Canada Goose (*Branta canadensis*) is represented only by one wing phalanx, perhaps indicating part of a wing and not necessarily food. Passenger Pigeon (*Ectopistes migratorius*) remains were recovered from three features.

Three species of woodpecker are represented by one specimen each. These include the Northern Flicker (*Colaptes auratus*), Hairy Woodpecker (*Picoides villosus*), and Red-bellied Woodpecker (*Melanerpes carolinus*) (Table 1). Woodpeckers may have been sought for purposes other than nourishment. A bone of a Red-bellied Woodpecker was recovered from the nearby Lauderdale site (44BO3), also a Dan River phase village (Carter & MacCord, 1968). Six specimens identified as American Robin (*Turdus migratorius*) were recovered from one feature and represent a single individual.

Mammals

Mammal remains, by far the most numerous among the vertebrate classes, include at least 16 species (Table 1). Individuals of some species (*Scalopus aquaticus*, *Oryzomys palustris*, *Microtus pennsylvanicus*) may represent fossorial intrusions rather than human food. Remains of squirrels and deer are particularly abundant, together accounting for 87% of identifiable mammal remains (Table 1). Deer bones and antlers were also fashioned into projectile points and other tools (see below). Adult human molars were found in two flotation (1/16-in. mesh) samples, while one human deciduous incisor was recovered from another. As neither shows evidence of premortem decay, these probably derived from earlier burials disturbed by later village activity. One feature, however, yielded a partial skeleton of a fetal or stillborn human (Whyte, 2000). Its inclusion among refuse in the feature appears to have been deliberate.

DISCUSSION

The archaeofaunal assemblage from Mount Joy is remarkable for several reasons. It is unusually well preserved; even the costal cartilage of large mammals, probably deer, and ossified tendons of turkeys remained preserved in some features. The assemblage is also remarkably diverse, in part because time was taken to employ fine-mesh (flotation) recovery (eight species are represented only by flotation fractions). Despite this diversity, however, the absence of remains of certain large mammals such as black bear and elk is noteworthy.

Human Diet

Late prehistoric human occupants of the Mount Joy site evidently relied substantially upon wild animal foods through hunting, trapping, collecting, and fishing. It may be overly presumptuous, realizing the potential biases of deposition, preservation and, especially salvage recovery at the site, to assume that the recovered sample is representative of the overall annual diet of the site's inhabitants. Nevertheless, it is clear that members of every available class of invertebrates and vertebrates provided sustenance. Large animals such as deer and turkeys appear to have contributed the bulk of the meat to the human diet, yet very small aquatic resources such as crayfish, minnows, and madtoms were eaten, and probably with greater frequency than is indicated by the recovered remains.

Fish, aquatic turtles, and crayfish were probably taken in baited traps, possibly set overnight. Shad were likely trapped with weirs, netted, or speared while making their spawning run in spring. Snakes and box turtles were probably collected as they were encountered during daily foraging in warmer months. Gallinaceous birds, so well represented in the assemblage, were probably trapped and occasionally shot, especially in the fall. Passenger Pigeons were probably taken in great numbers during their autumn migration by raking them from their roosts at night (see Swanton, 1979). Gray and Fox squirrels, apparently important animal foods, can be obtained at almost any time of year by trapping or shooting.

The importance of White-tailed Deer in the human diet at the Mount Joy site was primary, as it apparently was throughout the prehistory of the region (Waselkov, 1978). It is the largest, most well-represented animal in the assemblage and was probably sought year-round, but especially targeted in the fall and winter. As indicated by epiphyseal closure and tooth eruption and

wear, individuals represented in the assemblage range in age from six months to senescent.

Bone Modification

Evidence of butchery, in the form of cut marks, was observed on 25 specimens. Most of these are from a single feature, and all but one are specimens of either large mammals or large birds. Carcasses of smaller animals were probably skinned and cooked or consumed in their entirety.

Although evidence of bone breakage was not systematically recorded, nearly all bones of large mammals and most long bones of large birds exhibit perimortem fracture, presumably resulting from marrow extraction. Exceptions are certain of the turkey long bones which remain whole except for some gnawing of the ends (possibly by human teeth). Chop marks resulting from attempts at bone breakage were observed on three large mammal long bone fragments.

Three features (6, 14, and 18) were sampled to investigate the distribution of evidence of burning among archaeofaunal remains. The frequency of burning varies significantly among these features and among the vertebrate groups represented (Whyte, 2000). One-third of the remains in Feature 6 are either charred or calcined, while only 11% of those from Feature 14 are burned. All together, mammal and turtle remains exhibit the highest frequencies. In most cases, this burning probably resulted from inadvertent exposure to fire, such as in the construction and use of hearths over ground containing faunal remains (Coy, 1975; Bennett, 1999). Some, such as turtle shells and distal ends of mammal limb bones, may have become charred, but not likely calcined, in the roasting of meats.

Thirty-nine specimens exhibit evidence of artificial modification or use (Whyte, 2000). Of these, two appear to be projectile points or other pointed tools manufactured from deer antler tines. Other tools include sharpened and polished deer ulnae (3), mammal bone fragments (2), and turkey and other large bird long bone shafts (4). Twelve are beads or tubes manufactured from long bones of large birds, and seven are drilled alar phalanges of Wild Turkeys (Whyte, 2000). The latter may have had attached feathers which, when strung together, may have formed a feather skirt or apron. One specimen, a calcined bone of an indeterminate vertebrate recovered from Feature 35, represents the proximal end of a needle with a circumscribed groove rather than an eye. The remaining eight specimens are tool/ornament

manufacturing debris exhibiting evidence of grooving-and-snapping.

Evidence of rodent-gnawing was observed on deer and turkey remains from Feature 14 (Whyte, 2000). This gnawing most likely occurred before burial prior to deposition in Feature 14 or while the bones remained exposed within the pit. One deer and two rabbit bones exhibit evidence of having been partially digested, while 15 specimens, mostly of turkey and deer, from various features, exhibit evidence of carnivore or omnivore tooth marks (Whyte, 2000).

Seasonality of Faunal Resources

Several indicators of resource and site occupational seasonality were observed among archaeofaunal remains from the Mount Joy site. One indicator of spring (March-May) is provided by the recovery of remains of American Shad. Although only available during the spring spawning run, shad would have been one of the largest fishes in the James River above the Fall Zone in late prehistoric times. Their arrival near the site may have been eagerly anticipated and their capture facilitated by the construction of a weir.

Indicators of fall season activity include migratory Passenger Pigeons, remains of which were recovered from three features. Pigeons would have passed through the region mainly in September and October (Schorger, 1955). Wild Turkeys are also more obtainable in the fall when they aggregate in large flocks and move toward the bottomlands (Bent, 1963).

Most features contained a combination of remains of warm-season aquatic resources and terrestrial and avian species which can be obtained year-round, indicating relatively continuous human activity at the site. Feature 14 yielded much of the remains of a six to eight-month-old deer, indicating a winter season of death, while Feature 18 produced the remains of a deer, 18 to 20 months in age at death, also indicating winter hunting. These same features contained remains of warm-season fauna (fishes, amphibians, reptiles, and turtles), suggesting that the pits were filled with a combination of primary (immediate) and secondary (relocated) refuse.

In summary, the Mount Joy site was evidently occupied year-round and, as one would expect, faunal resources were exploited when they were seasonally abundant (poikilothermic, hibernating, and migratory species) or seasonally preferable (e.g., fatter deer with thicker hides and developed antlers).

Regional Comparisons

Several late prehistoric and protohistoric sites explored along the upper James and Roanoke River systems also contain Dan River phase village components (circa A.D. 1300-1500) and provide a comparative framework for the archaeofaunal remains from Mount Joy. Two sites are of particular interest because of their proximity and relative contemporaneity. These include the Lipes site (44BO1), located at the confluence of Looney Mill Creek and James River (MacCord, 1971), the Lauderdale site (44BO3), also located on Looney Mill Creek (Carter & MacCord, 1968), and the Bessemer site (44BO26), about 15 km farther west on the James River (Whyte & Thompson, 1989). Only a casual recovery and analysis of the animal remains from the Lipes and Lauderdale sites was conducted, allowing for the identification of certain species but no meaningful quantification of their remains (Carter & MacCord, 1968; MacCord, 1971). Yet, the lists provided are similar but less diverse than that of Mount Joy, in part because of the consistent sampling by flotation at the latter. Indeed, no fish remains were identified at either the Lipes or Lauderdale site.

The Bessemer (44BO26) assemblage, recovered by 1/16-inch mesh wet-screening, is virtually identical to that of the Mount Joy site (Whyte, 1989). One minor difference is that remains of Wild Turkey are more abundant in the Mount Joy assemblage. The Bessemer assemblage also includes Black Bear (*Ursus americanus*) but lacks Passenger Pigeons (*Ectopistes migratorius*). The ichthyofaunal assemblage from Bessemer is especially comparable to that of Mount Joy, including remains of many small madtoms and minnows as well as the seasonally available American Shad (Whyte, 1989). Additional sites farther up the James River (Whyte, 1988, 1990) and its tributaries only confirm the importance of fish in late prehistoric human diets of the region.

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